

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 81-55

WASTE DISCHARGE REQUIREMENTS FOR:

CHEVRON, USA, RICHMOND REFINERY  
RICHMOND, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. Chevron USA, hereinafter called the discharger, owns and operates a petroleum refinery in Richmond, Contra Costa County. The discharger filed a Report of Waste Discharge dated January 19, 1981, for the on-site disposal of wastes from refinery processes and the San Pablo Tank Farm.
2. The Board previously adopted an NPDES Permit for this refinery, hereinafter called the site, which regulates the discharge of wastewaters to San Pablo Bay.
3. The on-site disposal areas (specific disposal areas are hereafter called areas) are shown on Attachment "A" to this Order and include:

Area A: Landfarm

Consists of two areas totalling 29 acres used for treatment and disposal of group 1 and group 2 refinery wastes. Wastes total approximately 1800 pounds per acre per day and include oily sludges, wastewater pond skimmings and water treatment sludge. Wastes are injected into the soil for biodegradation. Runoff from this area is tributary to the wastewater treatment system.

Area B: Landfill

This area covers approximately 33 acres and is currently used for the disposal of approximately 50 cubic yards per day of group 3 material, resins, and water treatment sludges. This area in the past has been used for disposal of catalyst fines, filter clays, and oily sludges which are group 1 wastes. Runoff from the area is either collected and evaporated within the disposal area or discharged to the wastewater treatment system.

Area C: Hydrolyzing Pits

Consists of three ponds covering less than one acre. The ponds are used to neutralize hydrofluoric acid and precipitate fluoride salts. Approximately 1700 gpd of effluent from the ponds is discharged to the wastewater treatment system. Solids residue is periodically dredged and disposed of off-site.

#### Area D: Acid Sludge Pond

This pond covers approximately 3.5 acres and is not currently being used for waste disposal; however, it does contain approximately 59,000 cubic yards of waste. Approximately one third of this waste is sulfuric acid sludge discharged to the pond in the 1950's. The rest of the waste consists of dredged bay mud. The bay mud was discharged to the pond during the 1960's, and since it is heavier than the sludge, it now underlies the acid sludge. This area is separated from surface waters by a dam built in 1949. Surface runoff from surrounding hills is diverted around this pond and rainfall directly on the pond is evaporated. There is no discharge from the pond. The discharger proposes to add water treatment sludge to this pond when there is rain water ponded on top of the waste in order to neutralize the water's acidity.

4. Other areas on the refinery have been used for the disposal of group 1 wastes, including tetraethyl lead, flouride salts, and paint sludge. These areas have been or are being closed, with all wastes being removed to appropriate disposal sites. Closure of these areas is being monitored and regulated by the Department of Health Services and the Board's staff.
5. The discharger submitted a report titled "Ground Water Investigation" for its refinery dated May 18, 1981. The discharger also submitted operational and contingency plans for each of the waste disposal areas listed in finding 3 above, along with the report of waste discharge.
6. The ground water report for the discharger's Richmond Refinery indicates that the waste disposal sites listed in Finding 3 above overlie 100 to 370 feet of sediments which overlie bed-rock. These sediments consist primarily of clay, within which a series of thin, coarser-grained layers act as water-bearing zones. The permeability of the upper clay layer is approximately  $10^{-7}$  cm/sec. The top two water-bearing zones are not usable because of high salt content. The first usable aquifer is at a depth of approximately 100 feet.
7. Subsequent to modifications required to comply with this Order, disposal Areas A, B and C, listed in Finding 3 above, will meet the requirements for Class II-1 disposal sites, and Area D will meet the requirements for a limited Class I disposal site, as specified in California Administrative Code, Title 23, Chapter 3, Subchapter 15.
8. Surface drainage from the discharger's refinery operations area drains to the wastewater treatment system and then Castro Creek and San Pablo Bay.
9. The Board adopted a Water Quality Control Plan for the San Francisco Bay Basin in April 1975 and this Order implements the water quality objectives stated in that plan.

10. Existing and potential beneficial uses of ground waters near discharger's property include:
  - a. Limited domestic supply
  - b. Limited agricultural supply
  - c. Industrial supply
11. The beneficial uses of Castro Creek and San Pablo Bay are:
  - a. Recreation
  - b. Fish migration and habitat
  - c. Habitat and resting for waterfowl and migratory birds
  - d. Industrial water supply
  - e. Esthetic enjoyment
  - f. Navigation
  - g. Shellfish habitat
12. This project involves the continued operation of a privately-owned waste facility with negligible or no expansion of use beyond that previously existing. Consequently, this project will not have a significant effect on the environment based upon the exemption provided in Section 15101, Title 14, California Administrative Code.
13. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
14. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger shall comply with the following at its Richmond Refinery:

A. Waste Discharge Prohibitions

1. The treatment or disposal of waste shall not cause pollution or a nuisance as defined in Section 13050(m) of the California Water Code.
2. The discharge of any waste from disposal areas A through D to the surface or ground waters of the State is prohibited with the exception that treated wastewater from Area C may be discharged to the refinery effluent system and subsequently discharged to surface waters pursuant to an NPDES Permit. Waste material shall be contained in the designated disposal areas A through D shown on Attachment A.
3. Waste material or any of its components shall not exist on the ground surface anywhere outside of the waste disposal areas.

4. The discharge of additional wastes to area D is prohibited except to provide surface acidity neutralization.

B. Waste Disposal Specifications

1. Disposal areas A through D shall be protected to contain any washout or erosion of wastes or covering material, or from any threat of inundation, which could occur as a result of floods having a predicted frequency of once in 100 years.
2. Exterior surfaces of the dikes within the disposal areas shall be graded to promote lateral runoff of precipitation and to prevent ponding.
3. The exterior faces of dikes shall be protected from erosion and raveling to maintain the effectiveness of the barrier.
4. The discharger shall remove and relocate any wastes which are discharged at this site in violation of these requirements.
5. Any water which has contacted waste materials shall either be contained at the waste disposal site or be discharged to the refinery's wastewater treatment system. Any discharge shall not cause or contribute to any violations of the refinery's treatment system NPDES Permit.
6. Ponds in Areas C and D shall maintain a minimum freeboard of two feet at all times. This minimum may be modified based upon a water balance study which demonstrates that minimum freeboards of less than two feet will not result in pond overflows during peak rainfall periods.
7. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources shall not contact or percolate through group 1 and 2 wastes deposited on the site.
8. Vertical and lateral hydraulic continuity with ground waters shall be prevented by the presence of a natural clay barrier of at least 5 feet in thickness and a permeability of  $1 \times 10^{-6}$  cm/sec or less, or its equivalent, on the bottom and sides of disposal Areas A, B and C, and of at least 5 feet thickness of clay with a permeability of  $1 \times 10^{-8}$  cm/sec or less, or its equivalent, on the bottom and sides of disposal Area D. If such natural conditions do not exist, artificial barriers shall be constructed to meet the above specifications. Compliance with this requirement may be achieved by demonstrating an equivalent level of environmental protection by means other than physical barriers. Any claim of equivalent protection shall be approved by the Board.
9. The discharge of wastes in Areas A, B and C shall be limited to those wastes listed in the operations plans for each area which were submitted to this Board on January 19, 1981. Any modification of these plans concerning the amount and nature of the wastes discharged shall be approved by this Board. After compliance with Specification B.8. filter clays and catalyst fines may again be discharged to Area B.

C. Provisions

1. The discharger shall submit a report indicating compliance, or a plan and time schedule to assure compliance, with Specification B.1 by January 15, 1982 and full compliance shall be achieved by October 1, 1982. The full compliance date may be modified by this Board if the discharger demonstrates that compliance with the date cannot be achieved due to circumstances beyond their reasonable control.
2. The discharger shall submit a water balance and/or waste management plan to assure compliance with Specification B.6 by January 15, 1982. Full compliance shall be achieved by February 1, 1982 for Area C and October 1, 1982 for Area D. Full compliance date may be modified by this Board if the discharger demonstrates that compliance with the date cannot be achieved due to circumstances beyond their reasonable control.
3. The discharger shall submit a report indicating compliance, or a plan and time schedule to assure compliance, with Specification B.8 by July 1, 1982 for Areas A, B and C and by October 1, 1982 for Area D. Full compliance shall be achieved by October 1, 1983. The full compliance date may be modified by this Board if the discharger demonstrates that compliance with the date cannot be achieved due to circumstances beyond their reasonable control.
4. The discharger shall comply with all portions of this Order except Specifications B.1, B.6 and B.8 immediately upon adoption. The discharger shall take all reasonable actions necessary to minimize violations of Specifications B.1 and B.6 until full compliance is achieved.
5. The discharger shall submit a site closure plan for Areas A, B and C to the Board by April 1, 1983. This plan shall conform to Sections 2553.1 and 2553.2 of the California Administrative Code, Title 23, Chapter 3, Subchapter 15. The closure plan shall be updated by April 1 annually.
6. The discharger shall submit a closure plan for containment of wastes in Area D by October 1, 1982. This plan shall conform to all applicable sections of Sections 2553.1 and 2553.2 of the California Administrative Code, Title 23, Chapter 3, Subchapter 15, and at a minimum address:
  - a) The dynamic and static stability of the containment dam.
  - b) The ability of containment barriers to indefinitely contain the existing wastes in the pond.
  - c) The impact on surface and ground waters if wastes have migrated or are migrating from this pond.
  - d) The feasibility of eventually removing or neutralizing the wastes.

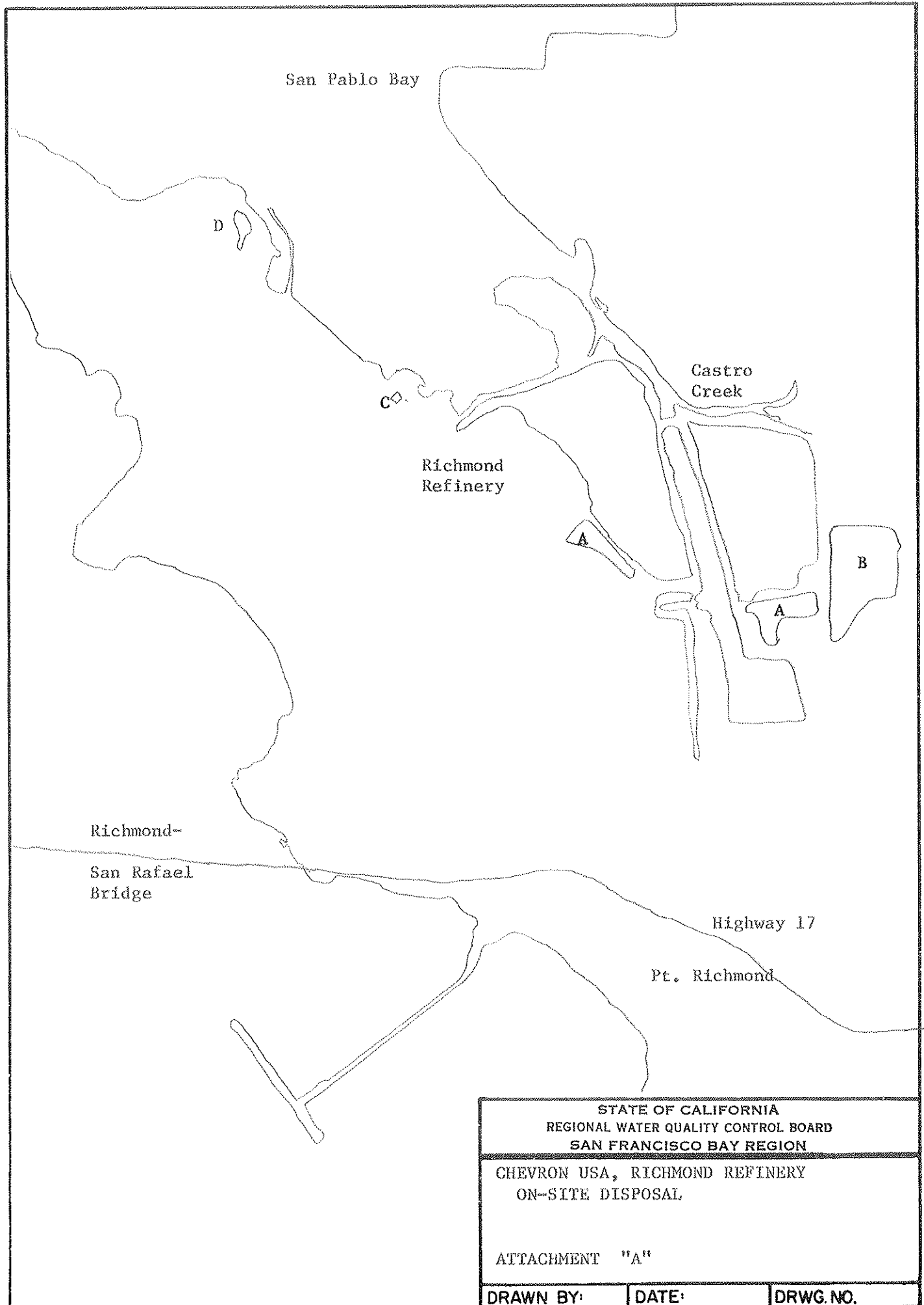
7. The discharger shall provide by April 1, 1983 assurances that monies are available in an amount estimated sufficient to ensure the closure and subsequent maintenance and monitoring of the disposal sites in a manner that will not pose an adverse threat to the environment. This report shall be updated by April 1 annually.
8. The discharger shall maintain a copy of this order at the site so as to be available at all times to site operating personnel.
9. The discharger shall maintain a legible record using a reporting form indicated by the Board of the volume and type of each group 1 wastes received at Areas A and B and the manner and location of disposal. The record shall be maintained for a period of not less than ten years, with the records to be forwarded to the Board if disposal operations cease.
10. The discharger shall file with this Board updates of its operation plan when substantial changes in operations are made and a letter indicating conformance with existing plans by October 1 annually. For the purpose of these requirements, this includes any proposed change in the boundaries, contours or ownership of the disposal area(s).
11. This Board considers the property owner to have a continuing responsibility for correcting any problems which may arise in the future as a result of this waste discharge or water applied to this property during subsequent use of the land for other purposes.
12. The discharger shall file with the Board technical reports on self-monitoring work performed according to the detailed specifications contained in any Monitoring and Reporting Program which may be directed by the Executive Officer.
13. The discharger shall permit the Regional Board:
  - (a) Entry upon premises on which waste is located or in which any required records are kept,
  - (b) Access to copy any records required to be kept under terms and conditions of this order,
  - (c) Inspection of monitoring equipment or records, and
  - (d) Sampling of any discharge.

I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 16, 1981.

Attachments:

Attachment A

FRED H. DIERKER  
Executive Officer



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM  
FOR

Chevron USA

Richmond Refinery

Contra Costa County

ORDER NO. 81-55

CONSISTS OF

PART A

AND

PART B



PART B

DESCRIPTION OF SAMPLING STATIONS AND SCHEDULE OF SAMPLING ANALYSIS, AND  
OBSERVATIONS

A. Land Observation and Sampling Stations

<u>Station</u>	<u>Description</u>
A-1 thru A-'n'	Stations at 100 foot intervals around the perimeter of the landfarm areas (Area A).
B-1 thru B-'n'	Stations at 200 foot intervals around the perimeter of the landfill (Area B).
C-1 thru C-'n'	Stations along the perimeter of the hydro- lizing pits (Area C).
D-1 thru D-'n'	Stations at 50 foot intervals along the con- tainment dam for the acid sludge pond (Area D).
E-1, E-2, E-3	Hydrolizing pits (Area C).
F	Acid sludge pond (Area D).

B. Ground Water Monitoring Wells

The ground water monitoring wells shall be the same as those wells listed in the report "Ground Water Investigation, Richmond, California Refinery for Chevron USA, Inc." by Dames and Moore dated May 18, 1981. The well locations are shown on the attached map and are generally described below. The letter following each well number indicates which water bearing zone the particular well measures. Water bearing zones of increasing depth are identified as A, C, B and D.

<u>Wells</u>	<u>Description</u>
101A, B, D	Downgradient (north) of oxidation pond No. 1
102A, B	Downgradient (north) Of hydrolyzing ponds (Area C)
103A, B	Downgradient (north) of west landfarm area (Area A)
104A, C, B	Downgradient (north) of east landfarm area (Area A)
105A, C, B	Upgradient of disposal areas near Castro Street and Highway 17

106A, C, B	Upgradient of disposal areas near Channel and Xylene Streets
107A, B	Downgradient (north) of landfill area (Area B)
108 A, C, B	Downgradient (north) of oxidation pond No. 2
109 C, B	Downgradient of disposal areas
POW-1	In containment dam for the acid sludge pond (Area D)
110A	Downgradient of former Pond 13, to be installed by November 1, 1981.

C. Observations

<u>Station</u>	<u>Frequency</u>	<u>Observation</u>
A-1 thru A-'n'	Weekly, October 1	Inspection to determine presence
B-1 thru B-'n'	to May 1, every	of leaching or seeps or any
C-1 thru C-'n'	other week, May 1	other indication of wastes
D-1 thru D-'n'	to October 1	leaving the disposal site or
		individual disposal ponds.
		Observations shall include
		any unusual growth or lack
		of vegetation.
E-1, E-2, E-3, F	Weekly, October 1	Observe available pond free-
	to May 1, every	boards
	other week, May 1	
	to October 1	

If any pond is observed to have less than the minimum freeboard specified in these requirements the Board shall be immediately notified by telephone. Notification, after February 1, 1982 for Area C and October 1, 1982 for Area D, shall include a proposal for achieving the minimum freeboard. Notification before these dates shall include interim measures to maximize available freeboard. A written report shall be sent to the Board within 24 hours.

D. Sampling and Analysis

<u>Station</u>	<u>Type of Sample and Frequency</u>	<u>Analyses</u>
101A, 102A,	Quarterly grab sample*	Electrical conductivity
103A, 104A,		pH
105A, 106A,		TOC
107A, 108A,		Ammonia
POW-1		Depth to ground water
	Semi-annual	TOH
	grab sample*	chromium
		lead
110A	Semi-annual	TOC
	grab sample*	chromium
		lead

104C		
105C, 106C	Semi-annual	Electrical conductivity
108C, 109C	grab sample*	pH
		TOC
		TOH
		Ammonia
	Annual grab sample*	Chromium
		Lead
101B, 101D,	Annual grab sample*	Electrical conductivity
102B, 103B,		pH
104B, 105B,		TOC
106B, 107B		TOH
108B, 109B		Ammonia

\*Grab samples shall be taken with a bailer after well has been cleared of at least one volume of water.

#### E. Provisions

1. In addition to the reporting requirements in Part A, records shall be kept and reported for each month showing all wastes received in Areas A and B. Wastes shall be recorded by general categories: oily sludge, debris, etc.
2. Annual reports shall contain graphs of ground water data collected during the previous three years for wells 101A, 102A, 103A, 104A, 105A, 106A, 107A, 108A, POW-1, 104C, 105C, 106C, 108C, and 109C for the following constituents:

TOC  
Ammonia  
Chromium  
Lead

I, Fred H. Dierker, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Order No. 81-55.
2. Does not include the following paragraphs of Part A: D.3, F.3.e.
3. The following sections of Part A shall be modified as follows:
  - a. Paragraph F.3.b: Remove "The report format will be prepared using the example shown in Appendix A."
  - b. Paragraph F.3.d: Remove "The report format will be prepared using the examples shown in Appendix B."

- c. Paragraph F.4: Remove the last sentence.
- 4. Is ~~effective~~ on the date shown below.
- 5. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

FRED H. DIERKER  
Executive Officer

Attachment:  
Monitoring Well Location Map

Effective Date 9-29-81

